# AFFIDAVITS

TAKEN IN CONNECTION WITH AN

## INVESTIGATION

—AS TO—

# WOOD AND SAWDUST DEPOSITS IN THE HUDSON AND OTHER RIVERS.

—SUBMITTED WITH—

## REPORTS ON THE SUBJECT,

—FROM—

## HON. WM. J. McALPINE,

—AND—

## D. M. GREENE, C.E.

*OTTAWA:*
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1876.

# AFFIDAVITS

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## INVESTIGATION

AS TO

# WOOD AND SAW-DUST DEPOSITS

## IN THE HUDSON AND OTHER RIVERS.

The following affidavits were taken at the instance of Mr. H. F. Bronson, of Ottawa, Canada, who was commissioned by the sawn lumber trade of that place to investigate the matter of saw-dust deposits in the Hudson River, in the State of New York, and were submitted in connection with reports on the same subject from Hon. Wm. J. McAlpine and D. M. Greene, Esq., C.E., previously published.

In looking over the statements regarding deposits in the Champlain Canal, which connects the waters of Lake Champlain with those of the Hudson River at Albany, the reader will bear in mind that that Canal is supplied with water throughout its entire length from the Hudson River principally through what is known as the Glen's Falls Feeder, which taps the river about one and a half miles above the town of Glen's Falls, on the Hudson.

As Mr. Greene states in his report, page 14 of printed copy, "in dry seasons nearly the entire flow of the river is thus diverted," while above the mouth of the Feeder there are a number of large saw-mills, particularly at Warrensburg, as Mr. Greene also mentions, from all of which "saw-dust, together with large quantities of slabs and edgings, are and have been from the beginning cast into the river." Hence the thorough investigation as to deposits of sawdust, &c., in the Champlain and Glen's Falls Feeder Canals.

Wm. J. McAlpine, of the City of Albany, State of New York, being duly sworn, deposeth and says that he is a Civil Engineer, and has been practising as such for the last forty-five years, and from eighteen hundred and thirty-four to eighteen hundred and fifty-four on the Eastern division of the canals of New York, embracing the Champlain and Glen's Falls Feeder Canals, in the capacity of Resident Chief and State Engineer.

That he has had charge of the enlargement of the Glen's Falls Feeder, and the re-construction of its locks, and also of the improvements of the Champlain Canal, and (during his term of office as State Engineer), of the removal of the Castleton bar, on the Hudson River, about six miles below Albany.

That while in the State service he has had occasion to pass over the Champlain Canal and Feeder almost every spring during the time that the workmen were engaged in removing the deposits from the bottom of these canals, the character of which deposits he has carefully noted. That he has been familiar with the traffic upon the said canals for the period above mentioned, and also with the vast amount of lumber manufactured on the Hudson River, above, at and below the said Feeder Canal.

That in the removal of these deposits from the said Canal, he has never seen or heard of any accumulation of sawdust in any part or place in the channels of these Canals, and has never heard of any complaint having been made of any such obstruction to the navigation of the Hudson River above Glen's Falls, nor below Fort Edward (the river between these two places being an almost continuous rapid).

That during the removal of the Castleton bar, by direction of the Legislature, in eighteen hundred and fifty-two, he has had occasion to frequently visit and examine the material excavated, and never observed or heard of any deposits of sawdust at that place, but that he has seen so removed sunken logs and decayed wood.

He further deposes and says that much of the sand used for the masonry of the enlargement of the Erie Canal, between Cohoes and Albany, was, by his direction, taken from the Hudson River bars, in consequence of its great purity and entire freedom from woody or organic matter; and more recently, viz., in eighteen hundred and sixty-nine, he directed that the sand for the twenty-five thousand cubic yards of masonry in the foundation of the new Capitol at Albany should be taken from the sand bars in the said river, opposite and below that city, and for the reasons first above stated.

That he has had occasion to examine the deposits made upon many other rivers in the United States, where large lumbering operations were carried on, as on the Delaware, Susquehanna, those in the State of Maine, and some in the Western States, and that he has never seen or heard of any obstructions or impediments to navigation on those rivers from the deposition of sawdust.

That he believes from the inferior weight of long water saturated sawdust to that of even the finest sand, the former will always be moved forward by a current which will just begin to deposit the latter, and hence that the two would rarely be deposited in the same place, and never

on a bar where there is a current of more than one-fifth of a mile an hour, and in a running stream it will only be deposited where there is almost no current, such as in eddies, or in very wide expanses of the stream, and even if it should happen to be left in any regular navigable channel, it would of itself form almost no obstruction to a vessel, which would only stir it up, and then it would be floated forward and deposited in another place where it would do no injury to the navigation.

And further this deponent saith not.

WM. J. McALPINE.

United States of America,
Commonwealth of Massachusetts.
Berkshire (s.s.), Feb. 16, 1871.
Subscribed and sworn to before me,

EDGAR M. WOOD,
*Commissioner of the Circuit Court of the U.S.*

——:o:——

STATE OF NEW YORK, }
COUNTY OF WARREN. } *ss.*

AUGUSTUS SHERMAN being duly sworn, says that he resides in Glen's Falls, in said County, and is engaged practically in the business of manufacturing lumber on the Hudson River, about fifty miles above the cities of Troy and Albany, and has been so engaged in said business for the last forty-five years and upwards. That during said time deponent has been the owner or lessee of one or more saw mills, run and operated by deponent in said business. That deponent owns timber lands on said river and its tributaries, and has cut the timber therefrom, manufactured the same into lumber, and transported the same to Troy, Albany and other markets, and is well acquainted with the Hudson River, its size, capacity, channel and currents, as well between Glen's Falls aforesaid and Troy and Albany, as above Glen's Falls. Deponent is also well acquainted with the different saw mills on said River and their capacity. That the principal part of the lumber manufactured by deponent has been manufactured by deponent at the mills known as the "Sherman Mill" and the "Swartwout Mill" (the latter leased by deponent), which are situated on said river, about one mile and one half mile above Glen's Falls aforesaid. That, during the last ten years deponent has manufactured at said mills about 15,000,000 feet of sawn lumber annually, the most of which has been cut into boards about one inch thick, and some into scantling 3 by 4 inches, and some into planks $1\frac{1}{4}$ inches thick, the whole on an average, in deponent's opinion, would not average over $1\frac{1}{8}$ inches in thickness. That, in deponent's opinion and belief, there has been manufactured annually, on an average, on the Hudson River, and principally at Glen's Falls, Sandy Hill and Fort Edward (all within a distance of eight miles), during the last ten years, not less than 160,000,000 feet of sawed lumber. That for the last fifty years large quantities of sawed lumber have been manufactured every year on said river, and in deponent's opinion and belief that for the forty years next

prior to the last ten years, not less than from 100,000,000 to 115,000,000 feet of sawed lumber were manufactured annually on an average. That from deponent's earliest recollections there has been a large business done on said river in manufacturing sawed lumber (and which extend back upwards of sixty years), and with some fluctuations has been gradually increasing. That formerly, say thirty-five years ago, nearly all the lumber manufactured on said river was from white pine and spruce timber, but white pine timber became more and more scarce, and has been manufactured less and less until the principal part of the lumber now cut on the said river is spruce and hemlock. Deponent further says that he has not seen and does not know of any accumulation of sawdust in said river to impede or in any way inconvenience navigation on said river whatever. That edgings have more or less as well as the sawdust been cast into the Hudson river. That deponent has seen in some of the eddies in said river small collections of edgings, sawdust, floodwood and debris; but for the edgings, slabs or other firm substance to hold or confine the sawdust in one place it moves and floats about readily in the water, and is easily moved by any disturbing substance in the eddies and will not remain in the channel of said river. That the Feeder Canal extends from the Hudson River to the Champlain Canal, and intersects said river at the point where deponent's said mill is located on said river, and that in deponent's opinion and belief there has been for the past forty years about 35,000,000 or 40,000,000 feet of sawed lumber manufactured annually on the Hudson River above said canal. That deponent has owned and run canal boats on said canal, and transported lumber thereon ever since it was navigable, and more than thirty years, and that deponent has never known or heard of any obstruction from accumulation or collection of sawdust in said canal. That from deponent's experience in the use of said river and canal and the manufacture of lumber, deponent has no doubt whatever that sawdust alone will not accumulate or collect in sufficient quantities to impede or impair navigation in the least. That deponent is now President of the First National Bank of Glen's Falls.

Subscribed and sworn to, before me this 31st day January, 1871.

A. SHERMAN.

S. BROWN, *County Judge.*

——:o:——

STATE OF NEW YORK, COUNTY OF WARREN. } *ss.*

ZENAS VANDUSEN being duly sworn, deposeth and saith that he resides in the town of Queensburg in said County, and is engaged in the business of manufacturing sawed lumber on the Hudson River; and that he has been so engaged for the last thirty years; and is familiar with the business of manufacturing sawed lumber on the Hudson River in all its branches. That deponent's saw mill is located on said river at the point where the Feeder Canal intersects said river. Deponent further saith that

he has heard read the affidavit of Augustus Sherman hereto annexed. That said affidavits so far as deponent has knowledge of the facts alleged and stated in said affidavit, is correct and true, and as to all other parts of said affidavit, deponent believes it to be true Deponent further saith that he has never known of any accumulation of sawdust in said river or canal, so as to in any way injure and impede navigation, nor of sawdust together with other material obstructing or in filling up said canal or the channel of said river, or in any other place than in eddies in the river.

Subscribed and sworn to, before me this 11th day of Feby., 1871. } ZENAS VANDUSEN.

S. BROWN,
*County Judge, Warren County.*

——:o:——

STATE OF NEW YORK, WARREN COUNTY, } *ss.*

JEREMIAH W. FINCH, being duly sworn, deposeth and saith that he resides in Glen's Falls in said county. Is Vice-President of the Glen's Falls National Bank, and is engaged in the business of manufacturing lumber, and has been for twenty years on the Hudson River and is now part owner in three large sawmills on said river, and is familiar with the business of manufacturing lumber in all its branches from cutting the timber from the stump to the sale of the lumber in the market. That the firm of which deponent is a member transports most of the lumber they manufacture to the cities of Brooklyn, New York, and other places intermediate, Glen's Falls and New York. Deponent further saith that most of the timber has been cut off the Hudson River proper, and the principal part thereof is now obtained from the tributaries of said river, and much of it from quite small creeks or brooks, and so small that the timber can be floated out only by means of dams, ponds, and artificial flooding, the effect of which is to wash the banks of the streams very much and thereby fill the waters with much earth which is carried down into the main stream, and some of it into the canal, and which gradually settles and is deposited on the banks and bed of the said river and canal. That all, or nearly all the mills cast more or less edgings and other refuse into the river as well as the sawdust. That in the eddies of the river the edgings have, in some few instances, lodged, and by means thereof sawdust, sand and other deposit collected and settled around, between and upon them, but that no such accumulations have formed in the channel of the river, and that the sawdust alone does not and will not accumulate or form any obstruction to navigation whatever. That deponent has never heard or known of any collection or accumulation of sawdust alone in the canal or Hudson River, nor of any accumulation or collection of edgings with sawdust and earth that was an obstruction or which impeded or impaired the navigation of said river or canal. That no one in this community, so far as deponent knows or has ever heard, claims, or has ever claimed, that sawdust made by

the sawmills was injurious to navigation or tended to injure the same either on the canal or river; nor has any objection been made to sawdust being discharged into the river, so far as deponent knows or has any information or belief. Deponent further says that upon his information he firmly believes that sawed lumber has been manufactured on the Hudson River for the last seventy-five to one hundred years; that deponent's belief is founded, as well upon the general statements, traditions and history of this portion of the country, as the fact that some of the ancient title-deeds forming a link in the chain of the title of some of deponent's mill property, and which were made in the seventeenth century, recognizing, then existing, of saw mills, and defining the rights and privileges of the same respectively, as well as to the use of water and other rights in common, as the boundaries of the mill sites. Deponent further says that Glen's Falls is located on the Hudson River, about fifty miles above Troy and Albany; and also, in deponent's opinion and belief, that for the last ten years there has been manufactured on said river, on an average, annually, not less than from 150,000,000 to 175,000,000 feet of sawed lumber, and before that time not quite so much.

Subscribed and sworn to before me, this 11th day of February, 1871. } J. W. FINCH.

S. BROWN,
*County Judge of Warren County, N.Y.*

——:o:——

STATE OF NEW YORK, WASHINGTON COUNTY. } *ss.*

ORSON RICHARDS, being duly sworn, says that he resides in the town of Kingsbury, in Washington County, and State of New York. That deponent is engaged in the business of manufacturing lumber, on the Hudson River, and has been so engaged for the last thirty years. That deponent has one mill which runs over 200 saws, and is part owner of four other mills, and is familiar not only with the sawing business, but also with all the other branches of the trade—as well as the running of the logs to the mills, as transporting the lumber to market by boating the same on the canal, and otherwise. That deponent's largest mill is located on the said Hudson River, about three miles below Glen's Falls. That deponent has been familiar with the said river and the business done thereon for the last thirty years and upwards. In deponent's opinion and belief, there has been manufactured on said river, annually, on an average, for the last ten years, at least 150,000,000 feet or more of sawed lumber; and before ten years last past, for the last twenty years, an average of not less than 120,000,000 feet or upwards of sawed lumber. That, in deponent's opinion and belief, prior to fifteen years ago, there has been as much as

of sawed lumber cut on said river and its tributaries per year (and which would average one inch and one-eighth of an inch in thickness), above the point where the Feeder Canal intersects the river, and the sawdust made therefrom, as well as more or less of the other refuse, cast into

the waters to be carried off. Deponent further says that he has never known or heard of any obstruction, hindrance or injury to boating, rafting or navigation from such sawdust or refuse in the river or canal. Deponent further says that he has never heard or known of any accumulation of sawdust in said canal or river whatever, alone, nor with other substances, except that in some of the eddies of the river the edgings and slabs have collected, and more or less sawdust has been stopped and held by the accumulation of such firm substances; nor has deponent ever known or heard of any such accumulations as last described being formed at any place or places in the least injurious to the use of the river for all floating and navigable purposes. Nor has deponent ever known or heard of any complaint by boatmen or others of sawdust being put in the river, nor has any objection ever been made to sawdust and other refuse being cast into the water, so far as deponent has any knowledge, information or belief in the premises. That deponent discharges large quantities of sawdust and some edgings into the said river every year. That as to the other refuse than sawdust, there has been less and less cast into the river in proportion to the lumber manufactured as such refuse has become more and more valuable for other purposes and it became the interest of the manufacturer to save it. That, so far as deponent has any knowledge, information or belief on the subject, all manufacturers of sawed lumber on said river have been guided and controlled—as to casting and throwing into the waters thereof the sawdust and refuse of and from sawed lumber manufactured—by their own interests and wishes, and that no injury has arisen therefrom—or, at least, none so far as deponent knows or has heard of, to the navigability of said river or canal.

Sworn to before me, this 11th day of February, 1870. } ORSEN RICHARDS.

W. M. Col. N, *Notary Public.*

——:o:——

STATE OF NEW YORK, WARREN COUNTY. } *ss.*

JOHN KEENAN being duly sworn, says that he resides in Glen's Falls in said county, and has known the Hudson River and Champlain Feeder Canal since 1832. That deponent is senior co-partner of the Jointa Lime Company, and President of the Glen's Falls Transportation Company, which runs boats from Glen's Falls to Troy, Albany, New York, and other places. That deponent and his co-partners have done work by the job on said canal in deepening and enlarging the same; and deponent has been familiar with the navigation and condition of said canal since the year 1832. That in the summer season when the water is the lowest in said river, the Feeder Canal draws the whole volume of water from the river, so that the channel of the river is practically turned into the canal during such periods of low water. That deponent has never known or heard of any saw-dust collecting or accumulating in any part or portion of said

canal. That deponent has repeatedly seen the workmen engaged at various times clearing the sediment out of the canals, but has never seen any saw-dust among it. That deponent has never known or heard of any injury arising from saw-dust in the river or canal to the navigation thereof. That the parties engaged in navigation on said river and canal have not considered and do not consider that the saw-dust from the saw-mills do any injury to navigation whatever, so far as deponent has any knowledge or belief; and that so far as deponent has any knowledge or belief, parties engaged in navigation have never made any objection, and do not object to saw-dust being cast in the river.

Subscribed and sworn to, before me, this 31st day of January, 1871. } JOHN KEENAN.

S. BROWN,
*County Judge of Warren County, N.Y.*

——:o:——

STATE OF NEW YORK, WARREN COUNTY. } *ss.*

COLONEL ALONZO W. MORGAN being duly sworn, says that he is a resident of Glen's Falls in said county, and has so resided since the year 1813; and had charge of the Feeder Canal, and about fifteen miles of the Champlain Canal, as Superintendent for three years, some twenty to twenty-five years ago, and as such Superintendent, had charge of making repairs on said portions of canal (and which portions included about four miles of the summit level of the Champlain Canal), and keeping it clear and free from obstructions, and every spring during said three years cleared out the deposit from the bottom of the canal, but that such deposit did not consist in any part of sawdust. That no sawdust ever collected or accumulated in said canal, so far as deponent has any knowledge or belief. Deponent further saith that when he first became acquainted with Glen's Falls there were four saw-mills at Glen's Falls, and also saw-mills all along for 30 or 40 miles above, and large quantities of white pine timber were then being manufactured, but as to what quantity deponent is not able to say, as deponent is not a lumberman. That, as deponent understood and believes, saw-mills were erected on the Hudson at Glen's Falls and vicinity, and the manufacture of lumber commenced, about ninety years ago or upwards, and has been continued ever since. That deponent never heard of any complaint or trouble as to navigation on the Canal or Hudson River from saw-dust, and never knew of any injury therefrom, and deponent does not believe navigation has been injured in the least by sawdust..

COL. A. W. MORGAN.

Subscribed and sworn to before me, this 31st day of Jan., 1871.

S. BROWN,
*County Judge of Warren County.*

——:o:——

GLEN'S FALLS, NEW YORK,
February 1st, 1871.

*To the Hon. the Commissioner of Public Works of the Province of Canada.*

Since January, 1832, I have resided at this place. I was a member of the Bar until 1857, and since then have been a Justice of the Supreme Court. During all the time I have been familiar with the lumbermen upon the Hudson River, and have observed and known their mode of operation in the manufacturing of lumber from the village of Warrensburgh, a distance of about 35 miles by the course of the stream above Glen's Falls to Fort Miller, about 18 miles below Glen's Falls. For twenty years I was counsel for parties owning water power at this place, in actions relating to such water power. I have read the affidavit of Mr. Augustus Sherman, in relation to the quantity of lumber manufactured at different points upon the Hudson River for fifty years last past, and I concur with him in his statement so far as it relates to the time that I have resided here. All the mills in which the lumber has been manufactured have been operated by water, and have discharged their sawdust and edging into the stream. During the season of low water in the summer, the principal part of the water in the river is required, and is used for canal navigation through the Glen's Falls Feeder, the head of which is a mile and a half above Glen's Falls. During the whole time that I have resided here I have never observed that any obstruction to navigation, or to the use of the Hudson River for floating logs, or for water power, has been occasioned by the discharge of sawdust and edgings from saw-mills into the stream, nor have I ever heard any objection made or of any objection being made to such use of the stream, nor have I ever heard any complaint made by navigators of the canals, or by those interested in their navigation, or by officers having the same in charge, that the sawdust or edging from the saw-mills above the Feeder Dam have had any tendency to obstruct the use or to diminish the supply of water in the Canal.

I make this statement at the request of my friend, Mr. H. F. Bronson, of Ottawa.

Respectfully,

E. H. ROSEKRANS,
*Justice of Supreme Court.*

——:o:——

STATE OF NEW YORK, }
WARREN COUNTY, } *ss.*

HON. JOSEPH RUSSELL, being duly sworn, says that at present he resides at Glen's Falls, and until lately resided at Warrensburg, in said County, and which place is also located upon the Hudson River. That deponent has been actually engaged in the business of manufacturing sawn lumber for the last fifty years on the Hudson River, except that deponent's lumber business for the last ten years, or about that time, has been elsewhere, and not on said river. That deponent commenced lumbering fifty years ago,

on the East branch of the Hudson River, six miles above Warrensburg. That at that time, in deponent's opinion and belief, there were 75,000,000 feet of sawed lumber, and upwards, manufactured annually on the Hudson River and its tributaries, and that the manufacture of sawn lumber has been gradually increasing on said river ever since (with some fluctuations), until now, in deponent's opinion and belief, the manufacture of sawed lumber on said river and its tributaries exceeds 200,000,000, and, in deponent's opinion and belief, will average annually at least from 175,000,000, to 200,000,000 for the last ten years. That when deponent first commenced lumbering, not only edging, but more or less slabs were thrown in the river, and the whole waste, aside from sawdust, was at least four times as much as at present; that the change or diminution of waste thrown in the river has been caused by the increased value of the material and the improvements in mills and machinery. That there has never been any restriction, by public law or otherwise, so far as deponent has any knowledge or belief, or information, upon the millowners and manufacturers casting into the river as much refuse stuff as they chose, but, on the contrary, they have always disposed of the refuse stuff, including sawdust, as their convenience and interest required, and generally by casting the same into the river. That deponent has never known or heard of any obstruction or injuring to the navigation of said river or the canal by reason of the sawdust and refuse stuff cast into the river, nor has deponent ever known or heard of any objections being made to refuse stuff being cast into the river. Deponent further says that he represented this District in the Congress of the United States two terms of two years each. Deponent was first elected in 1844, and the last term in 1850.

JOSEPH RUSSELL.

Subscribed and sworn to before me,
this 1st day of Feb., 1871.
S. BROWN, *County Judge of Warren County.*

——:o:——

STATE OF NEW YORK, } *ss.*
WARREN COUNTY. }

WILLIAN COLEMAN, being duly sworn, saith that he resides in the town of Kingsbury, Washington County, and State of New York, and in the immediate vicinity of the Feeder Canal, and has so resided for thirty years last past. That deponent has been Superintendent of said Feeder Canal, and that part of Champlain Canal which the Feeder Canal discharges its waters into, for about eight years. That, among others, it was deponent's duty to keep said canal free and clear from all obstructions, and occasionally deponent caused the sediment to be cleared from the bottom of the said canals of which deponent was such Superintendent, but never found any accumulation of sawdust in said canals, but did find sand, dirt and mud. That deponent has been well and familiarly acquainted with said canals and its navigation for over thirty years last past; that the canal has never been obstructed, filled, nor partially filled with sawdust (except as the same flowed with the currents of the water), nor has the navigation thereof been

in the least impeded or interfered with by sawdust. Deponent further says that he has never heard of any trouble from the sawdust in the Hudson River relative to navigation, nor any complaint against or objection to its being deposited or cast into the river, by forwarders, boatmen, or any one connected with the navigation of said canals or river; and, in deponent's opinion and belief, there is no objection whatever to sawdust being cast into the waters of the river, so far as navigation is concerned. That deponent qualifies the above statement as to deponent's being Superintendent by saying that deponent held the office but two years, but was agent for Mr. Sherwood (now deceased), who was Superintendent for the rest of the time, said eight years, and had the active management and control of the business in relation to the canals, Mr. Sherwood not giving much personal attention to the business.

WM. COLEMAN.

Subscribed and sworn to before me,
this 31st day of Jan., 1871.

S. BROWN, *County Judge, Warren Co.*

——:o:——

STATE OF NEW YORK, }
WARREN COUNTY. } *ss.*

DAVID UNDERWOOD being duly sworn, says that he resides in Fort Edward, Washington County, New York, and has represented his District in the Legislature of the State of New York. Deponent further says that he is a saw mill owner and manufacturer of lumber on the Hudson River, and has been practically engaged in the business for the past twenty-nine years. That deponent's mills are located at Fort Edward, about six miles below Glen's Falls. That in deponent's judgment and belief there has been 200,000,000 feet of sawed lumber at least manufactured annually on the Hudson River on an average during the past ten years. That deponent has been acquainted with the Hudson River, the business thereon and navigation thereof, for almost forty years; and in deponent's judgment and belief, for the thirty years next preceding the last ten years, there was sawed lumber manufactured on said Hudson River annually on an average from 125,000,000 to 150,000,000 feet of sawed lumber. That formerly the timber manufactured into lumber on the Hudson River was mostly White Pine, but lately it is mostly Spruce and Hemlock. That in deponent's belief the average thickness of lumber cut on said river during the time aforesaid does not exceed one inch and one eighth of an inch in thickness. That deponent has never heard or known of any complaint, trouble or inconvenience arising from sawdust to navigation on the Hudson River and in the canal. That from deponent's position and business deponent thinks it impossible that any obstruction or inconvenience could have occurred from sawdust without deponent's having known or heard of it.

Subscribed and sworn to, before me this 31st day of January, 1871.
S. BROWN.

DAVID UNDERWOOD.

——:o:——

STATE OF NEW YORK, } ss.
WARREN COUNTY. }

GEORGE SATTERLEE being duly sworn, says that he resides in the village of Fort Edward, in Washington County, in the State of New York, and is, and for the last year has been the Superintendent of the Glen's Falls Feeder Canal; and also of about twenty-five miles of the Champlain Canal and of that part thereof into which the waters of said Feeder are discharged.

Deponent further says that in the spring of the year of 1870, deponent caused said portions of said canals, of which he is Superintendent, to be cleared from deposit of whatever had accumulated therein; that deponent was personally engaged in superintending the work, but did not find any deposit or accumulation of any sawdust in either of said canals. That deponent has resided at Fort Edward, through which said canal and the Hudson River both pass, for the last twenty years and upwards, and deponent has never known or heard of any accumulation or deposit of any sawdust in either said river or canal, to injure or inconvenience the navigation in the least on either of them.

Subscribed and sworn to, before me, this 1st day of February, 1871. } GEORGE SATTERLEE.

S. BROWN,
*Warren County Judge.*

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*From Ex.-Senator Richards, New York State :—*

POTSDAM, N. Y., Feby. 2, 1871.

Prof. D. M. GREENE,—

DEAR SIR,—The writer is surviving partner of the late firm of G. & S. T. Richards, who were up to a recent time engaged in the lumber manufacturing business, and operated mills propelled by water power, on the Schroon, or east branch of the Hudson River, which is the main branch of that river above the Mohawk.

In common with all the other mills on the Hudson and Schroon Rivers, the sawdust made at our mill was always dropped into the river and carried down the stream by the water.

The firm of G. & S. T. Richards commenced such business in the year 1848, and continued in it to and including the year 1869, during all of which time they were acquainted with the other parties doing a similar business on such rivers, and it was known that the mills disposed of their sawdust in the manner above mentioned; and during all of which time the said firm of G. & S. T. Richards put their slabs, edgings and buttings, as well as sawdust into the river. The lumber manufactured by us was mainly put on canal boats at Glen's Falls, and transported through the Champlain Canal to Troy and Albany and other markets below those points on the Hudson River.

The mills aforesaid of G. & S. T. Richards manufactured annually on an average about one and three-quarter millions feet board measure of pine, spruce, hemlock, bass, ash, and some other kinds of lumber. Our mill was located six miles above the village of Warrensburg (over twelve miles by the river, which has very little fall for that distance), to which place we moved our lumber by rafting and running down the river. We were never troubled in the least by the presence or accumulation of sawdust in the river or canal in transporting our lumber to market. Soon after the building of the large leather tanneries on the river and branches above our mill, we had considerable fears that the accumulation of exhaust ground tanbark, large quantities of which were thrown into the river above us, might seriously interfere with the navigation of the river. In fact the tanbark was our greatest danger; but it was found that the spring freshets had the effect to throw the bark and sawdust into bars above ordinary water, where after the bars got dried out, the owners of the land burned the accumulations and got a very good manure for their land.

In the opinion of the writer, founded on his experience in the business, no danger need be apprehended of the obstruction of the navigation of a river on account of the accumulation of sawdust thrown into it.

Respectfully,

GEO. RICHARDS.

—:o:—

STATE OF NEW YORK, }
RENSSELAER COUNTY. } *ss.*

THOMAS MCMANUS, being duly sworn, deposes and says that he resides in the city of Troy, and is the senior member of the "Hudson River Transportation Company," whose offices are at 191 River Street, in said city; and that the business of said company consists in the transportation of merchandise upon barges and otherwise, on the Hudson River, between the cities of New York and Troy and intermediate points. Deponent further says that he has been acquainted with the said Hudson and its navigation for the period of 25 years, and that he has been actively engaged in the navigation thereof for the 23 years last past. Deponent further says that he has been an Alderman of said city of Troy; that, during the time he served as such Alderman, he was Chairman of the Committee on Navigation, the chief duty of which was to keep the Hudson River in navigable condition within the limits of said city; that said Committee had charge of the city dredge, and also had control of its operations.

Deponent further says that he has a large acquaintance with persons engaged in the navigation of said Hudson River, and that such acquaintance, together with his own personal experience and observation, have afforded him unusual facilities for knowing the location, magnitude and character of the bars and other obstructions to navigation in said Hudson River, and of the kind of material of which they are and have been composed.

Deponent further says that said obstructions and bars are caused by the deposit or accumulation of sand and gravel, together with sunken logs and pieces of timber, the latter being, in deponent's opinion, an active primary cause of those obstructions which contain them. Deponent has never seen or heard of any obstructions or impediments to navigation which were caused by the deposit or accumulation of sawdust alone, nor has he ever heard of any complaint or objection having been made—that sawdust cast into the river from sawmills on its banks or elsewhere became deposited in bars, or that it had a tendency to be so deposited, or that it injured or impeded navigation in any manner whatever.

Deponent further says that he does not believe that sawdust alone has been or will be deposited, or that it will accumulate on the bottom of the channel of a navigable river like the Hudson to such an extent and of such consistency as to produce any impediment or obstruction to the free navigation of such river.

Subscribed and sworn to before me, this 18th day of February, 1871. } T. McMANUS.

D. M. GREENE,
*Commissioner of Deeds.*

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STATE OF NEW YORK, }
RENSSELAER COUNTY. } *ss.*

DANIEL H. SULLIVAN, being duly sworn, deposes and says that he resides in the city of Troy; that he has been acquainted with the Hudson River and its navigation for 28 years; that he has been engaged in the navigation of the said river, in various capacities, during the greater part of that period, and that he is now, and has been for 14 years, the Superintendent of the "Hudson River Transportation Company."

Deponent further says that the offices of said company are located in the said city of Troy, and that its business consists in the transportation of merchandise, upon barges and otherwise, upon said river, between the cities of New York and Troy and intermediate points. That, during the time deponent has been employed on said river, and especially during the time he has acted in the capacity of Superintendent, as aforesaid, he has been personally familiar with the location, magnitude and character of the bars and other obstructions to navigation which have from time to time been formed in said river, and has observed the kind of materials of which they were formed, and that said materials were mud, sand and gravel, together with oak logs and hard wood sticks; but that deponent never saw pine logs removed from said bars.

Deponent further says that he never saw any deposit or accumulation of sawdust in the channel of said river, and that he never experienced any difficulty, or met with any obstruction or impediment in the navigation thereof which was caused by sawdust.

Deponent further says that he has a large acquaintance amongst persons engaged in the navigation of said Hudson river, and that, in his

intercourse with such persons so engaged, he has never heard of any bars, deposits or accumulations of sawdust in the channel thereof which interfered with or impeded navigation in the least; nor has deponent ever heard of any complaint or objection having been made to the casting of sawdust into said river, that it obstructed or impeded, or that it had a tendency to obstruct or impede navigation; or that it was objectionable in any way whatever.

Deponent further says that he was for six years employed in a shipyard at the village of Athens; that said village of Athens is situated on the west bank of the Hudson River, about twenty-five miles below the city of Albany, and about thirty-one miles below the city of Troy. That in the said shipyard the sawmill was located over a small bay, where there was no perceptible motion of the water except such currents as were caused by the tides, and where the bottom was of soft mud; that the sawdust from said mill was deposited into the water of the said bay; that there was never, so far as deponent knows, any accumulation of sawdust upon the bottom of the river at that point, but that the sawdust so deposited or cast into the river was floated off, and, as deponent verily believes, was carried by the current to the sea.

Finally, deponent says that, in his opinion (which is based upon his experience and observation upon the said Hudson River), sawdust, when cast into a navigable river like the Hudson in such quantities and at such rates as it would naturally be produced in the manufacture of lumber, will not produce bars or obstructions to navigation in the channel thereof.

Subscribed and sworn to, before me, this 17th day of February, 1871. } DANIEL H. SULLIVAN.

D. M. GREENE,
*Commissioner of Deeds.*

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STATE OF NEW YORK, RENSSELAER COUNTY. } *ss.*

HENRY SMALLEY being duly sworn, deposes and says that he is a resident of the City of Troy in said County. That said city of Troy is located upon the Hudson River, about fifty miles below the river of Glen's Falls, in the County of Warren in said State, and about one hundred and fifty miles above the City of New York; and that large volumes of the waters of the Erie and Champlain Canals, together with the sediment therein contained, are deposited in said Hudson River within the limits of the said City of Troy. Deponent further deposes and says that he has been familiar with, and has been engaged in navigating said Hudson River for the period of sixty years; that from 1849 to 1870, a period of about twenty years, he was employed as Captain of the Troy city dredge; that while so employed he had occasion to remove from the channel of the said Hudson River, within the limits of the said City of Troy, all deposits tending to obstruct or impede the navigation of the same. That he personally saw and knew

the character of the materials dredged from the channel of said river within the limits aforesaid; and that said materials so removed, consisted almost exclusively of mud, sand and gravel. Deponent further deposes and says that he never saw or heard of any deposit or accumulation of saw-dust in the channels of said Hudson River, which did or could, in his opinion, obstruct or impede navigation on the same, and that he never heard of any complaint from any persons engaged in navigating said Hudson River; that their business had been or was in any way injured or affected by deposits, or accumulation of saw-dust.

Deponent further deposes and says that he has seen in still water and in eddies, small accumulations of sawdust; that in eddies such accumulations of saw-dust were held by accumulation of water logged timber, leaves and other debris previously formed, which served as a nucleus or bar for the retention of said saw-dust, but that in every instance these accumulations of saw-dust, as aforesaid, were of a semi-fluid character, and so nearly of the same specific gravity as water, as to yield to the slightest disturbing cause.

Deponent further deposes and says that, in his opinion, sawdust alone will not and cannot accumulate in the channel of a navigable river in such masses, or of such density, as to prevent, obstruct or impede the navigation of the same.

Deponent further says that the effect of the tide is felt at the said city of Troy, the rise and fall of the water in said Hudson River at said city of Troy, as the direct result of the tides being from twelve to twenty-four inches daily.

Subscribed and sworn to, before me, this 11th day of February, 1871 } H. SMALLEY.

D. M. GREENE,
*Commissioner of Deeds.*

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STATE OF NEW YORK, }
WARREN COUNTY. } *ss.*

GEORGE NELSON, being duly sworn, deposeth and saith, that he resides in Stillwater, in Saratoga County, New York, and is Superintendent of all that part of the Champlain Canal, in the State of New York, southerly of that part thereof of which George Satterlee is Superintendent, and has been such Superintendent for the last year.

Deponent further says that he has resided near said canal and has been familiar with it and its condition, and the business done thereon, for the last thirty-five years. Deponent further says, that in the spring of the year 1870, deponent as such Superintendent, caused that portion of the said canal in his charge, as aforesaid, to be quite thoroughly cleared of the sediment and deposit therein, and deponent superintended the work personally to the extent of his whole time thereon. That said Stillwater is located on the west bank of the Hudson River, about thirty miles below Glen's Falls, in Warren County, New York

Deponent further says, that he found no saw-dust in said canal in clearing out the same, and deponent has never known or heard of any accumu'ation of saw-dust in said river or canal, or any injury or inconvenience resulting to navigation in said river or canal therefrom at any place or time.

Subscribed and sworn to, before me, this 1st day of February, 1871. } GEORGE W. NELSON.

S. BROWN,
*County Judge of Warren County.*

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CITY OF OTTAWA,
PROVINCE OF ONTARIO, CANADA.

LEVI YOUNG, of the City of Ottawa, being duly sworn, deposes and says that he is acquainted with the character of the Penobscot River, in the State of Maine; that he was engaged in navigating said river and in attending booms upon it, from the year 1832 to the year 1854; that during that period he enjoyed every facility for learning the capacity of said river, and for making himself acquainted with the business transacted upon it. Deponent further says that said river runs through an extensive pine region; that for many years the timber of this region has been sawed into lumber upon the banks of said river, and that the sawdust has been cast into the said river. Deponent further says that he never saw any deposits of sawdust in the channel of said river, and that he never heard of any bars or obstructions to navigation of any kind resulting from the deposition of sawdust. Deponent further deposes and says that when large quantities of slabs and edgings are cast into a stream with sawdust, and especially where shoals and eddies occur, bars or accumulations may occur, but that his experience with navigable streams, and in the manufacture of lumber on such streams, has taught him, and that he verily believes, that sawdust alone has not been and will not be deposited in such a manner as to obstruct or impede navigation, or to obstruct the ordinary natural flow of the water.

Sworn before me at Ottawa, this 20th day of Feb., 1871. } LEVI YOUNG.

GEO. HAY, *J. P.*

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I, DAVID RING, of the City of Ottawa, in the County of Carleton, a foreman in the employ of Messrs. Bronson & Weston, at Ottawa, make oath and say as follows:

I was born in the town of Old Town, on the Penobscot River, in the State of Maine. I am now 38 years of age. I worked on the said river from the time I was able to work at all until the year of our Lord one thousand eight hundred and fifty-five, when I left that part of the country for Canada, where I have since remained. I am well acquainted with the

Penobscot River, having worked on it from the head waters thereof to its mouth. There are a great many saw-mills on the said river: it is literally covered with saw-mills for ten miles thereof between the said town of Old Town and the city of Bangor. From these mills all the edgings and sawdust is thrown into the said river, and more sawdust and edgings is so thrown into it in one week than is thrown into the Ottawa River from the saw-mills at the Chaudiere in one year. During the last five years that I was at work on the said Penobscot River I drove rafts of sawed lumber down it. The navigation of the said Penobscot River was not in any way damaged, injured or affected by the said sawdust, nor was the natural flow of the water in the said river obstructed thereby, nor did it impede the navigation thereof.

DAVID RING.

Sworn before me at the City of Ottawa,
in the County of Carleton,
this 20th day of Feb., 1871.
GEO. HAY, *J. P.*

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Area of territory drained by the River Ottawa and tributaries above the city of Ottawa is 43,000 square miles. Add 19,000 square for area drained below Ottawa and above Grenville, making a total area of 62,000 square miles (not including about 4,000 square miles more below Grenville).

By the Report to the Canadian Legislature by T. C. Clarke, Esq., C.E., of his survey of the Ottawa Canal navigation, the *mean* discharge of the Ottawa (by a series of observations), at Grenville is 85,000 cubic feet per second—35,000 cubic feet per second at low water, and 150,000 cubic feet per second at high water.

Forty inches may safely be taken as the average precipitation of rain and snow in Canada on the Ottawa; it would seem necessary to assume a greater average in order to account for the great delivery of the Ottawa compared with the area it drains.

A. J. RUSSELL.